SWIM Connect 2014
Get Plugged In…

Federal Aviation Administration

Decision Support Programs

"The 3Ts"

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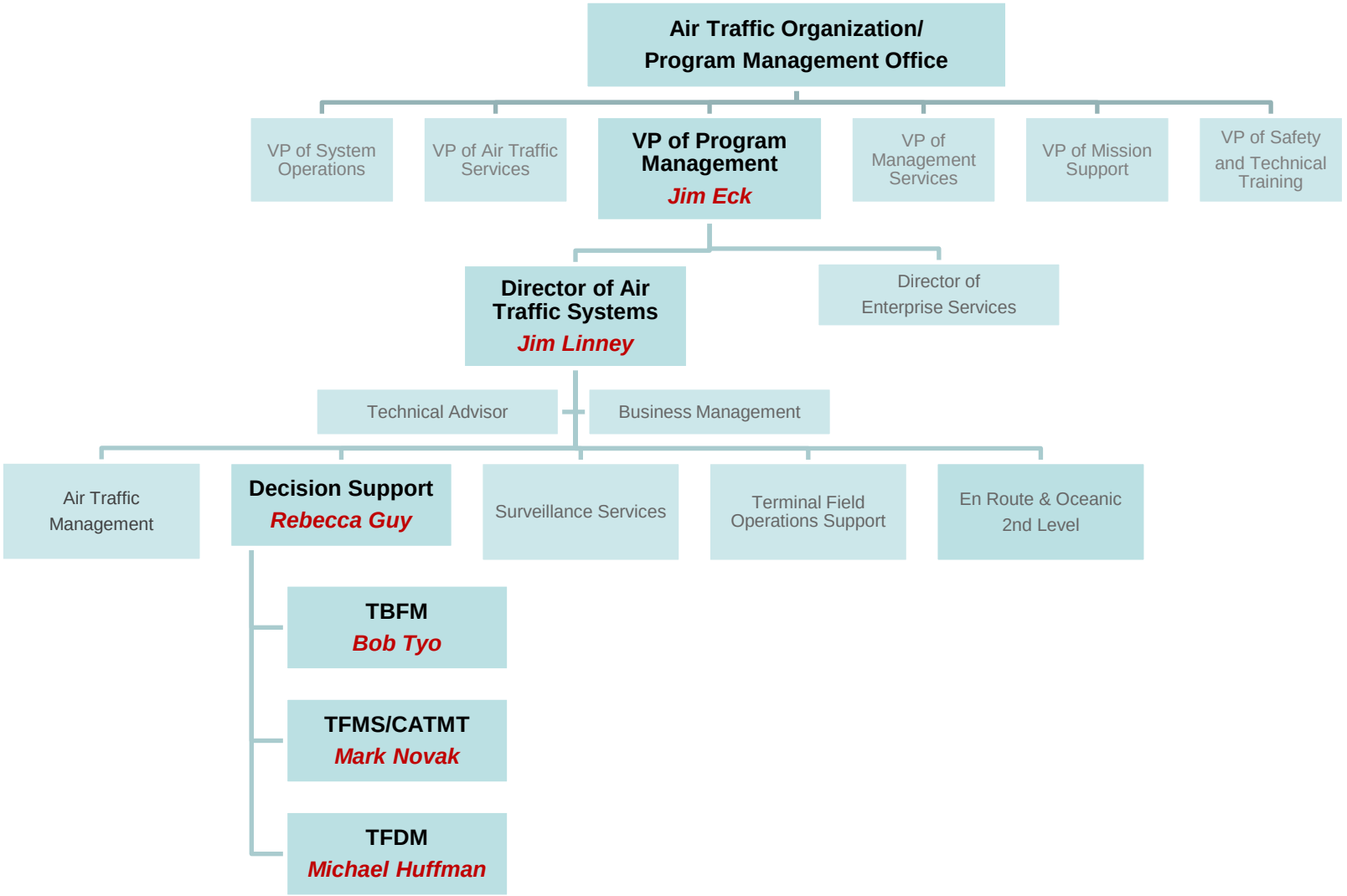
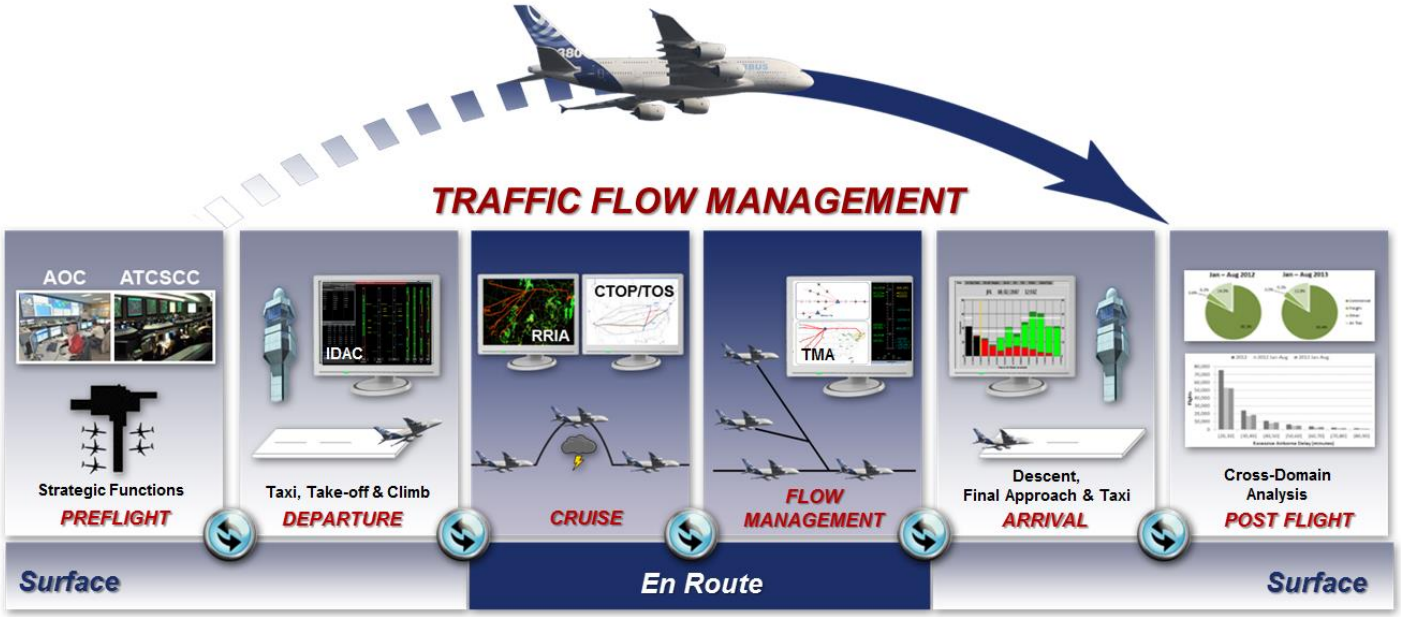
DSS: Who are we?



DSS Mission: Traffic Flow Management (TFM)

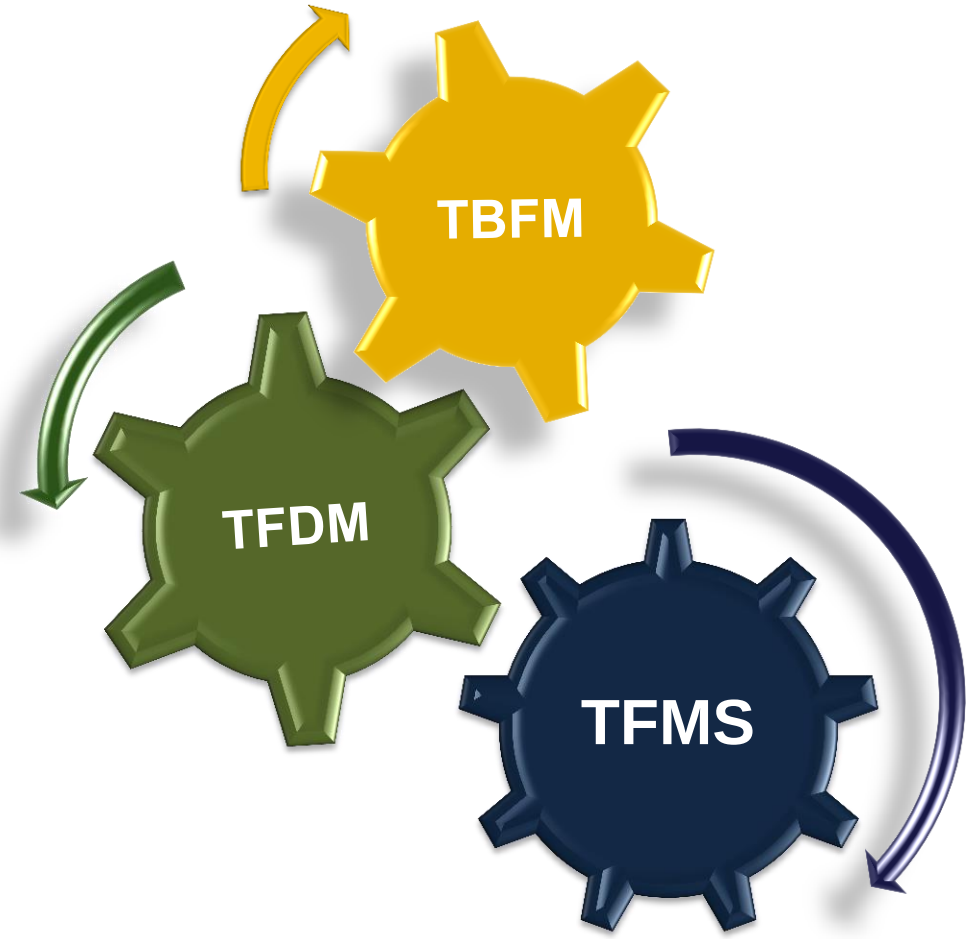
- **NextGen is an ongoing transformation of the NAS**.
  - Incremental implementation of new technologies and procedures is vital to meeting future growth of aviation.
- **DSS facilitates NextGen vision through TFM – TFDM, TBFM and TFMS**
  - Ensures efficient flow of traffic and maximizes system throughput across the NAS
  - Improves the quality of service to NAS users by accommodating user preferences
  - Improves common situational awareness by real-time information sharing



DSS Vision: Enabling NextGen

- **Enable NextGen technologies in TFM operations**
  - ✓ Performance Based Navigation (PBN) –use of RNAV/RNP and Optimized Profile Descent (OPD) technologies in TBFM
  - ✓ System Wide Information Management (SWIM) – TFM data exchange with external systems through SWIM
  - ✓ System-wide solutions that are able to be tailored for individual aircraft –
    - ✓ Surface
    - ✓ Routes- Utilizing user preferences
- **Provide integrated, responsive and collaborative TFM solutions that maximize efficiency and reduce delay.**
  - ✓ ***INTEGRATED:*** Strategic and tactical TFM strategies are modeled and implemented as a single cohesive strategy.
  - ✓ ***RESPONSIVE:*** Faster more effective responses to evolving conditions in the NAS.
  - ✓ ***COLLABORATIVE:*** Data sharing among stakeholders facilitates solutions that impose no more controls on flights than needed, allowing flight operators to fly their preferred routes at preferred times.

DSS components: 3Ts are the engines of DSS



Traffic Flow Management System (TFMS)

Decision support system for planning and mitigating demand-capacity imbalances in the NAS.

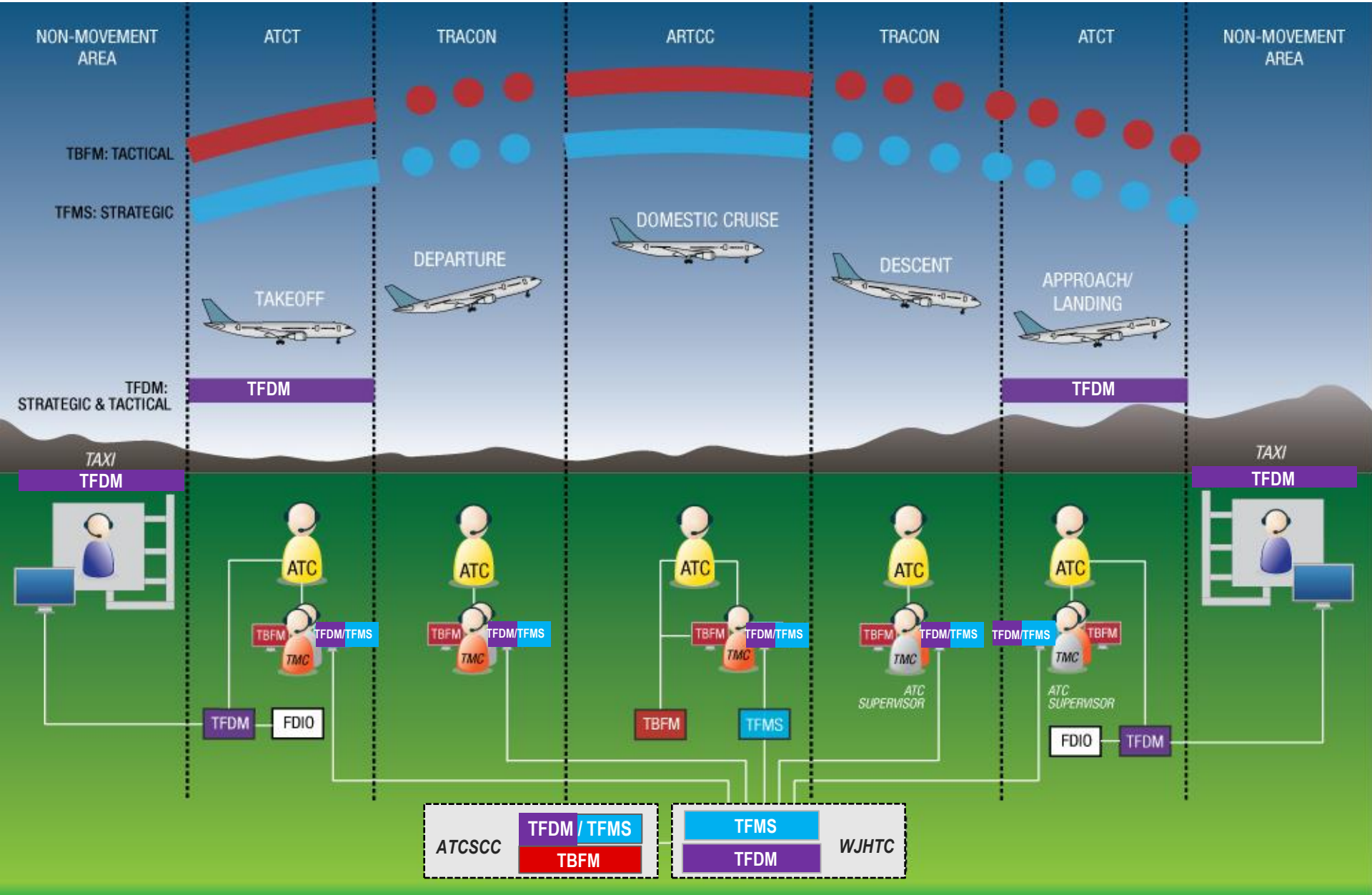
Time-Based Flow Management (TBFM)

Decision support system for metering based on time to optimize the flow of aircraft.

Terminal Flight Data Management (TFDM)

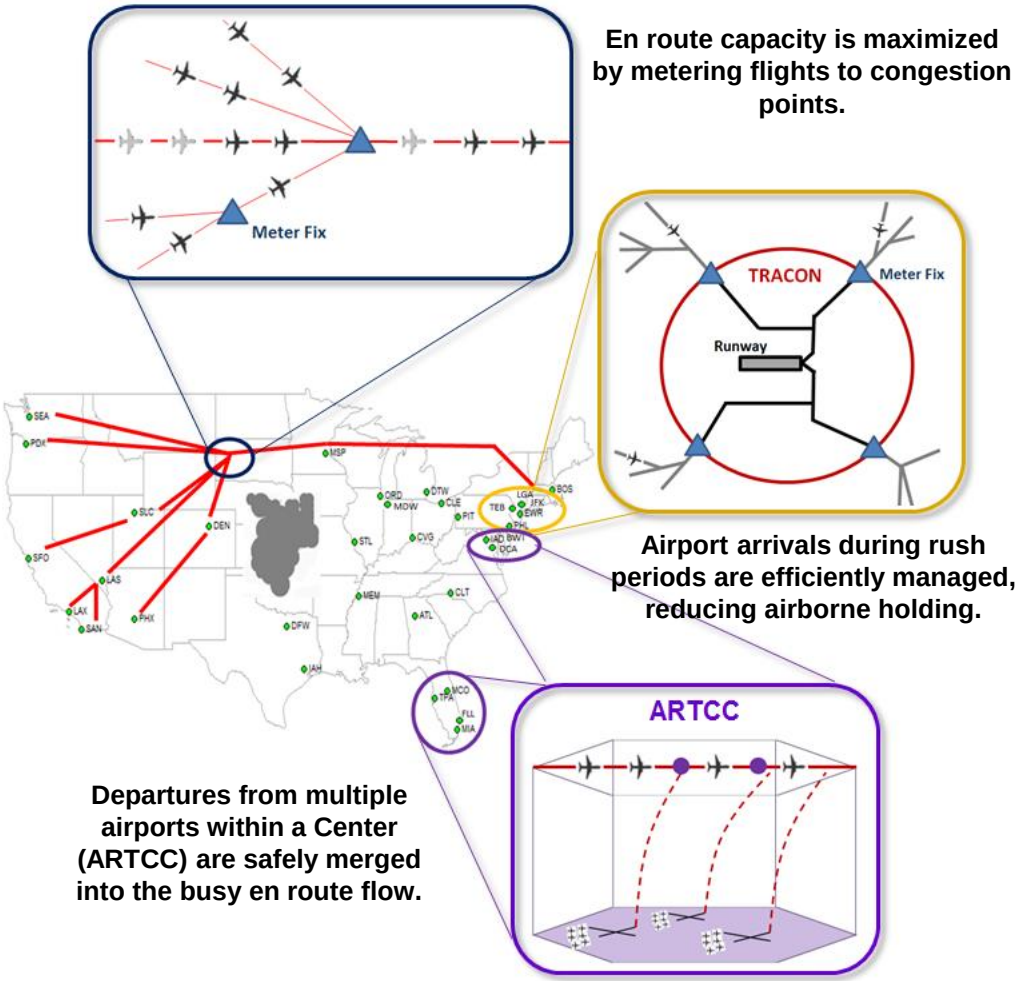
A new decision support system for airport surface management and ATC tower functions.

Integrated TFM: 3Ts working together



Time Based Flow Management (TBFM)

TBFM: Metering and Scheduling



En route capacity is maximized by metering flights to congestion points.

Airport arrivals during rush periods are efficiently managed, reducing airborne holding.

Departures from multiple airports within a Center (ARTCC) are safely merged into the busy en route flow.

TBFM meters and sequences the flow of aircraft to provide a smooth and orderly flow.

TBFM metering lists are generated using complex algorithms to maximize use of available capacity. They are updated dynamically as conditions change.

TBFM assists Air Traffic Controllers by displaying the required delay for each aircraft in the metering list.

Information Sharing

Publishing TBFM information to SWIM for subscription to both Internal and External Users

- TBFM publishes information such as:
  - Aircraft Information - Flight plan information, Estimated Time of Arrivals, Scheduled Time of Arrivals, etc.
  - Configuration Information - Arrival Airport Configuration, Acceptance Rates, etc.
  - Metering Status Information - TMA Metering Status, etc.

- Consumers:
  - Non-NAS consumers: Delta to start, followed by other airlines, Lincoln Labs, Volpe, etc.
    - Able to better predict arrival/departure times of aircraft
  - NAS Consumers – TFMS and TFDM
    - Improve coordination between multiple FAA Systems to maximize efficiency

Terminal Flight Data Manager (TFDM)

Terminal Flight Data Manager

TFDM will provide efficiencies in the airport surface and terminal airspace by providing new integrated surface traffic control and management capabilities, including:

Collaborative Decision-Making on the Surface	Collaborative decision-making (CDM) on the surface, including departure scheduler, departure metering, and other airport decision tools
Electronic Flight Data	Electronic Flight Data (EFD) and Electronic Flight Strips (EFS) in the tower
Traffic Flow Management	Enhanced Air Traffic Control Tower (ATCT) Traffic Flow Management
Systems Consolidation	Replacement of multiple systems in the National Airspace System (NAS)

Please note TFDM information in this briefing may be subject to change until the FAA's Final Investment Decision is complete.

TFDM Interdependencies

Planned SWIM / TFDM Interfaces

- **Flight Operators and Flight Service Providers**
  - **More Timely and Specific Information on Individual Flights from the operators including gate and estimated off block times**
  - **Schedule and Surface Metering Information from TFDM**
- **Time Based Flow Management (TBFM)**
  - **Airport Specific Arrival Predications and Schedules**
  - **Call For Release Data Exchange**
- **Traffic Flow Management System (TFMS)**
  - **TFMData Service**
  - **Surface Situational Awareness and Schedule information**
- **EnRoute Automation Modernization (ERAM)**
  - **Flight Data Publication Service information (FDPS)**
- **ASDE-X/ASSC/STARS**
  - **SWIM Terminal Data Distribution Service information**

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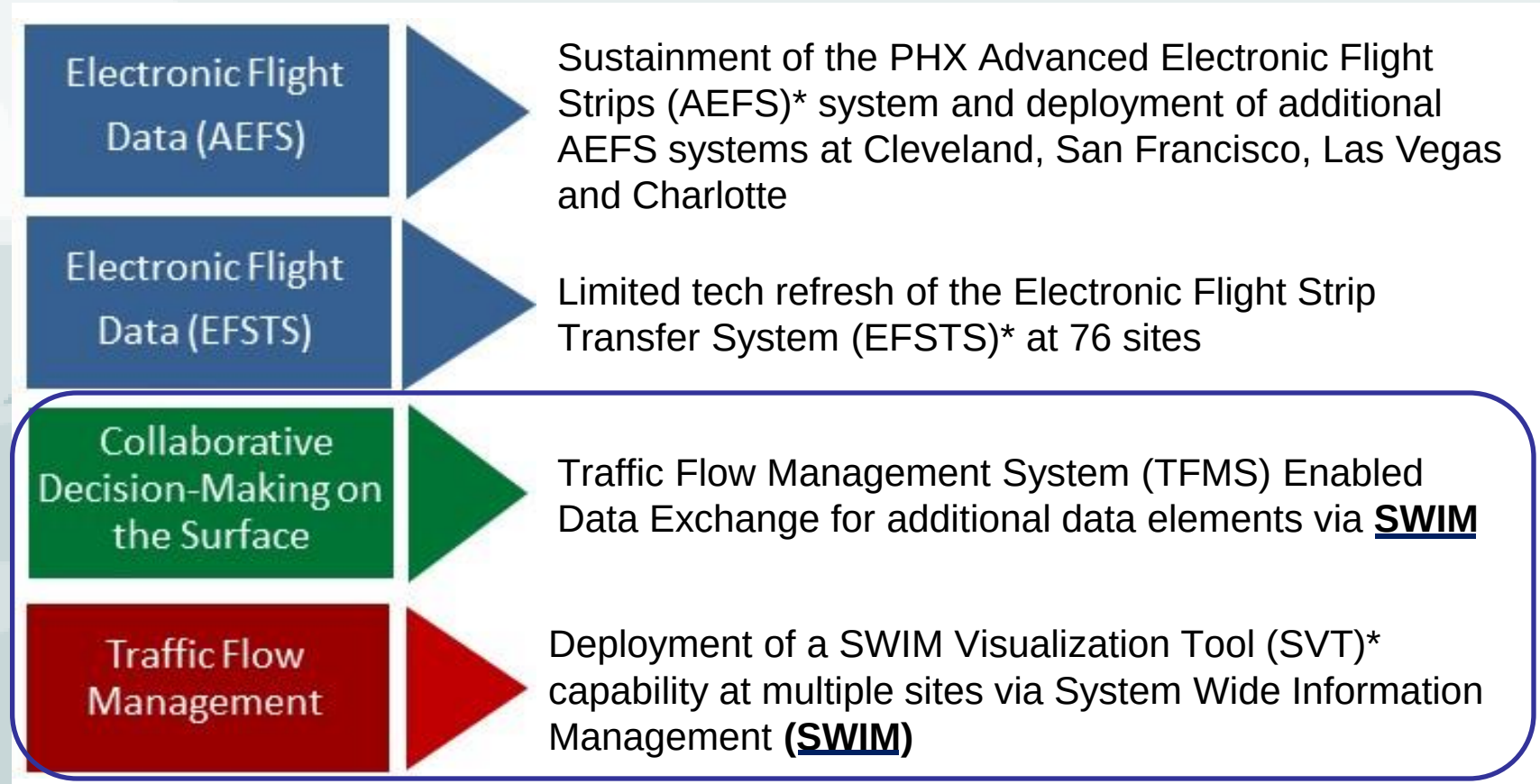
TFDM Early Implementation

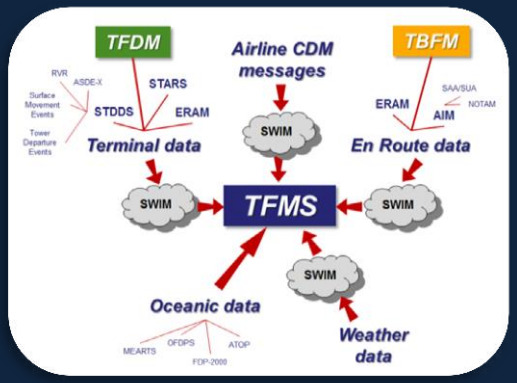


* After the In-Service Decision of the baselined system, the TFDM Program Office will replace AEFS, EFSTS, and the SVT capability with the TFDM equipment and capabilities

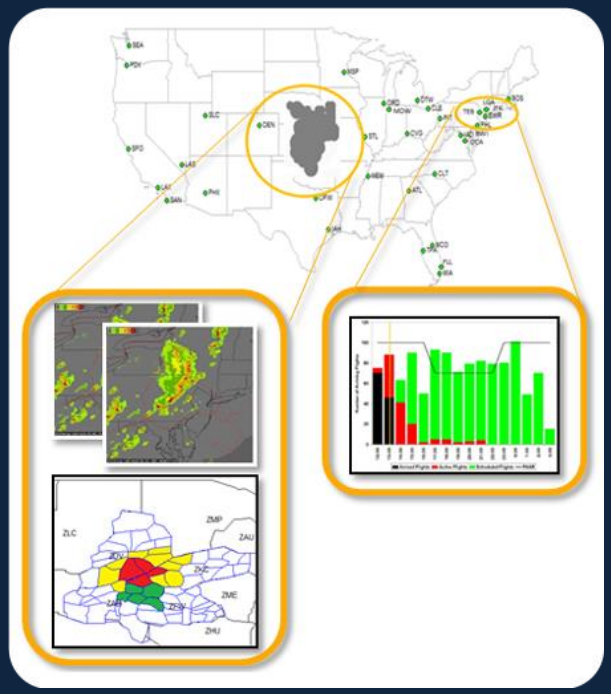
Traffic Flow Management System (TFMS)

TFMS: *Focusing on efficiently improving the "greater NAS"*

Monitors demand and capacity for primary NAS resources



Assesses the impact of NAS disruptions and provides alerts



Implements the NAS strategic plan to balance demand with available capacity

Receives updates from other NAS systems and makes adjustments to this plan as needed

TFMS Data – Fall 2014 Release

- TFMS publication service Traffic Flow Management Data “TFMData” via SWIM includes:
  - Flight Data: *Flight Plan Data, Departure & Arrival time notifications, Flight cancellations*
  - Flow Information : *TMIs, ATCSCC advisories, Restrictions, etc*

- Current legacy feeds to be retired (by Nov 2015):
  - ASDI (Aircraft Situation Display to Industry)
  - TFMDI (TFM Data to Industry)
  - TFMDG (TFM Data to Government)
  - FTM_Connect

TFMS Data Enhancements – Spring 2016 Release

- Terminal Flight Data Manager (TFDM) Interface
  - Ingest select surface data elements for early implementation via SWIM
    - Improve departure modeling
  - Distribute new messages via TFM Data Feed (SWIM)

- International Data Provider (IDP) interface
  - Goal is to replace current interfaces using SWIM/NEMS message exchange